Customer No.: 31561
Application No.: 10/065,874
Docket No.: 9788-US-PA

AMENDMENTS

In the Claims:

Please amend the claims by amending claims 1, 7, 10 and 18, canceling claims 6 and 17, and adding claims 21 and 22, according to the following listing of claims and substitute it for all prior versions and listings of claims in the application.

1. (currently amended) A method for fabricating a polysilicon layer, comprising:

providing a substrate;

forming a barrier layer on the substrate;

forming a porous material layer on the barrier layer, wherein the porous material layer comprises an alloy of silicon oxide and aluminum oxide, and the barrier layer and the porous material layer form a buffer layer;

forming an amorphous silicon layer on the porous material layer; and

performing a laser annealing process to form a polysilicon layer.

2. (original) The method of claim 1, wherein the barrier layer is formed by chemical vapor deposition.

3. (original) The method of claim 1, wherein the barrier layer comprises silicon nitride.

4. (original) The method of claim 1, wherein the porous material is formed by e-beam evaporation.

5. (original) The method of claim 1, wherein the porous material layer comprises silicon oxide.

6. (canceled).

7. (currently amended) The method of claim 1~~-6~~, wherein a ratio of the silicon oxide to the aluminum oxide in the silicon oxide/aluminum oxide alloy is about 95:5.

8. (original) The method of claim 1, wherein the thermal conductivity of the porous material layer is lower than 0.014W/cm-K (20 degrees Celsius).

9. (original) The fabrication method of claim 1, wherein the laser annealing process includes an excimer laser annealing process.

10. (currently amended) A fabrication method of a polysilicon layer, comprising:

providing a substrate;

forming a barrier layer on the substrate;

forming a stress buffer layer on the barrier layer;

forming a porous material layer on the stress buffer layer, wherein the porous material layer comprises an alloy of silicon oxide and aluminum oxide, a thermal conductivity constant of the porous material layer is lower than that of the stress buffer layer, and the barrier layer, the stress buffer layer and the porous material layer form a buffer layer;

forming an amorphous silicon layer on the porous material layer; and

performing a laser annealing to form a polysilicon layer.

11. (original) The method of claim 10, wherein the barrier layer is formed by chemical vapor deposition.

12. (original) The method of claim 10, wherein the barrier layer comprises silicon nitride.

13. (original) The method of claim 10, wherein the stress buffer layer is formed by chemical vapor deposition.

14. (original) The method of claim 10, wherein the stress buffer layer comprises silicon oxide.

15. (original) The method of claim 10, wherein the porous material is formed by e-beam evaporation.

16. (original) The method of claim 10, wherein the porous material layer comprises silicon oxide.

17. (canceled).

18. (currently amended) The method of claim 10~~-17~~, wherein a ratio of the silicon oxide to the aluminum oxide in the silicon oxide/aluminum oxide alloy is about 95:5.

19. (original) The method of claim 10, wherein the thermal conductivity of the porous material layer is lower than 0.014W/cm-K (20 degrees Celsius).

20. (original) The method of claim 10, wherein the laser annealing process includes an excimer laser annealing process.

21. (new) The method of claim 1, wherein the barrier layer is about 500 angstroms thick, and the porous material layer is about 500 angstroms to about 2000 angstroms thick.

22. (new) The method of claim 10, wherein the barrier layer is about 500 angstroms thick, the stress buffer layer is about 1500 angstroms thick, and the porous material layer is about 500 angstroms to about 2000 angstroms thick.